American Water Works Association
Government Affairs Office

Dedicated to Safe Drinking Water

1401 New York Avenue, NW
Suite 640, Washington, DC 20005
http:www.awwa.org
(202) 628-8303 Fax (202) 628-2846

September 17, 1999

Magalie Roman Salas,
FCC Secretary
Office of the Secretary
Federal Communications Commission
The Portals, 445 Twelfth Street, S.W.
Washington, D.C. 20554

RE: WT Docket 97-81, Multiple Address Systems

Dear Ms. Salas:

Enclosed are comments and 4 copies submitted by the American Water Works Association in response to the Federal Communication Commissions request for comments on WT Docket 97-81, Multiple Address Systems.

AWWA appreciates the opportunity to offer the attached comments on this important rulemaking.

Best regards,

John H. Sullivan

John H. Sullivan, P.E.
Deputy Executive Director

Attachments

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Headquarters Office:
6666 W. Quincy Avenue, Denver, CO 80235
(303) 794-7711 Fax (303) 795-1440

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Multiple Address Systems	)	
	)	**WT Docket 97-81**
	)	
	)	

To: The Commission

COMMENT

American Water Works Association
Jack H. Sullivan, P.E.
Deputy Executive Director
1401 New York Avenue, N.W., Suite 640
Washington D.C. 20005

Dated: 17 September 1999

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EXECUTIVE SUMMARY

In the Telecommunications Act of 1996 the Congress charged the Federal Communication Commission (FCC) with the requirement that radio frequency spectrum for communication, both voice and data, be assigned as a result of auctions. In this act particular frequency spectrums were set aside for use by "public safety" organizations. In the Act, "public safety" was identified as police and fire protection services.

The Balanced Budget Act of 1997 directed the FCC to provide spectrum set-aside for a more broadly described "public safety services" including critical national infrastructure entities outside the auction process. The following are key points raised in the more detailed comments that follow.

- The FCC uses a flawed assessment of the demand for the 932/941 MHz band in many of its proposals in the Further Notice of Proposed Rulemaking and Order (FNPRO). By mischaracterizing the demands for this spectrum the FCC fails to propose a licensing approach that meets the requirements of the Communications Act of 1934 (as amended) to manage telecommunications spectrum for the public good.
- Seven years after utilities responsible for essential services like, drinking water, sewer, electricity and gas, were initial told that spectrum would be available, they cannot yet gain protected access to spectrum that is critical to the safe and reliable delivery of these services to the American public.
- **The 928/952/956 MHz band should be reserved exclusively for "private, internal use,"** moreover, it should be reserved band for "public safety radio services," which also meet the "private, internal use" definition, but must also meet the more restrictive definitions in the Balanced Budget Act of 1997 (BBA 1997).
- BBA 1997 specifically excludes "public safety radio" services from the need to rely on spectrum exclusively available through competitive bidding. This exclusion should extend to the resolution of mutually exclusive applications.
- **Site-by-site licensing of MAS frequencies is the only licensing strategy that makes sense in the context of current and foreseeable future band usage.**
- If the FCC reserves all of the 928/952/956 MHz band for "public safety radio services," **AWWA believes that a 20 channel set-aside for "public safety radio services," and specifically critical national infrastructure in the 932/941 MHz band is appropriate and will not meet critical national infrastructure entities' total need for spectrum.**
- Speculation as to how to manage the 932/941 MHz band in the absence of a five-channel set aside would give credence to an approach that would not be in the public interest or assist the FCC meet its legal obligation under the Balanced Budget Act of 1997.
- The Microwave Data Systems (MDS) proposal to grant all mutually exclusive applications that reach the coordinator on the same day and require the users to work out some sort of shared use agreement is on its face unworkable.

INTRODUCTION

The American Water Works Association (AWWA) is an international, nonprofit, scientific and educational society dedicated to the improvement of drinking water quality and supply. Founded in 1881, the Association is the largest organization of water supply professionals in the world. Our 56,000 plus members represent the full spectrum of the drinking water community: treatment plant operators and managers, environmentalists, scientists, academicians, and others who hold an interest in water supply and public health. Our membership includes approximately 4,000 water systems that supply water to roughly 80 percent of the people in the nation.

Drinking water utilities are a critical component of our nation's infrastructure and as such play an vital role in ensuring public safety. Water distribution systems are critical to fire fighting in order to sustain water service, radio-based real-time control systems are used to maintain adequate supply and pressure in the delivery system. The inability of water systems to sustain service would disarm the fire fighters.

Water operations at typical public water systems (PWS) involve specific telecommunication applications in the treatment and distribution of drinking water. For these applications, the most effective medium is radio:

- Voice
- Data collection and control (Supervisory Control and Data Acquisition, known as SCADA)
- Video

Operational facilities at typical PWS include:

- Treatment plants
- Pumping stations
- Storage reservoirs and tanks
- System valves and regulators
- Flow, pressure, and quality
- monitoring

These facilities are dispersed over large geographic areas routinely measured in square miles and in some instances involving facilities separated by many miles. A treatment and distribution system must provide adequate potable water to:

- Individual residences
- Fire hydrants
- Medical facilities (i.e., hospitals, clinics, dialysis centers)
- Business and industry

It is significant to note that water system distribution piping and storage capacity is normally designed to meet fire flow requirements rather than normal water usage demands. This design requirement results in larger storage facilities, pumps, and water mains--all facilities which are managed and operated using telecommunications systems for timely, reliable information transfer.

SCADA systems in particular consist of radio-based real-time control systems that are critical to PWS operations. SCADA systems are used to control the remotely located treatment and distribution facilities described. For example SCADA systems are used to:

- Control and monitor water quality in water treatment plants and water distribution systems.
- Optimize pumping operations to maximize system operating efficiency
- Maintain water levels in storage reservoirs to meet fire flow demands
- Control distribution system pressures
- Deliver an adequate supply of water to sustain fire flows
- Security

SCADA plays a critical role in provision of a safe drinking water supply. With the increasing awareness of microbial and chemical contaminants and their potential public health impacts, continuous monitoring of water quality parameters throughout the distribution system become critical. Critical control parameters are collected from monitoring points in the water treatment and distribution system using SCADA systems. Data managed includes:

- Pressure levels, continuous pressure control is a tool to prevent ground and surface water from infiltrating into distribution facilities, providing a 24 hour check on system integrity.
- Monitoring of water chemistry at wellhead or surface water intake facilities to insure that treatment plant operation is optimized (water may subsequently reach the treatment plants in minutes requiring electronic communication).
- Provide water quality information on a continuous 24 hour cycle enabling process control adjustments to maintain water quality.
- Providing pressure and flow information not available locally but critical to the safe operation of equipment.
- Monitoring intrusion to prevent vandalism or sabotage.

Drinking water utilities are public safety service entities that serve individual communities of with specific geographic and jurisdictional boundaries. As a local service provider, drinking water utilities are managed by local government and state regulatory agencies, which control both the scope of their activities and supporting rate structures. Failure by the FCC to follow Congress's direction to provide (1) useful spectrum allocation for drinking water utility and other public safety radio service entities and (2) exemption from auction so that spectrum is available at a reasonable cost will both impede drinking water utilities' ability to meet federal water quality standards for human consumption and negatively impact their ability to support fire protection.

COMMENTS

Paragraphs 4, 11, and 19 - Regarding the 1992 932/941 MHz Applications

The FCC continues to rely on its assessment of the 50,000 applications it received for the 932/941 MHz band, concluding that the highest need for this spectrum is for commercial use. The demographics of the applications received should have no bearing on the conclusions of the needs

for this spectrum. Moreover, the 50,000 applications were received by the FCC in 1992; it is now 1999 and significant changes have taken place in the availability of both technology and spectrum to support subscriber-based services. Since 1996 applicants for the 932/941 MHz band that were not simply speculative in nature have already migrated to other bands obtaining spectrum, in many cases spectrum that is more efficiently used for subscriber based services that the 932/941 MHz band, through other FCC rulemakings. The FCC, particularly the Wireless Telecommunications Office, have been hard at work since 1996 to insure that these subscriber-based services have available spectrum.

When characterizing the 50,000 applications for the 932/941 MHz band it is important to recognize that applications received were predominantly from commercial ventures which had the resources and familiarity with the FCC's processes needed to file these applications in a timely manner. It is understandable, then, why most of the applications were for commercial use. Most utilities (especially municipal water and wastewater), on the other hand, do not have the resources or the capability to file these applications quickly. Therefore, they were grossly under-represented in the demographics of the applications filed. In previous comments AWWA has made the case for this point and more importantly demonstrated that utilities have a continuing need for this spectrum.

The overwhelming majority of the applications for this spectrum filed in 1992 were speculative in nature and it is likely that most filers (unlike the utilities) had no real plan for what to do with this spectrum if they would have been awarded a license and would have most likely bartered or sold their rights to someone else. Those commercial users with actual plans for the use of spectrum in the 932/941 MHz application process can and probably have already found spectrum in other bands to suit their needs.

The FCC uses this flawed assessment of the demand for the 932/941 MHz band in many of its proposals in the Further Notice of Proposed Rulemaking and Order (FNPRO). By mischaracterizing the demands for this spectrum the FCC fails to propose a licensing approach that meets the requirements of the Communications Act of 1934 (as amended) to manage telecommunications spectrum for the public good.

Now, in 1999, the FCC has provided spectrum for numerous subscriber-based uses so that citizens have access to cell phones, pagers, and other telecommunications devices for a whole list of mundane purposes. But seven years after utilities responsible for essential services like, drinking water, sewer, electricity and gas, were initial told that spectrum would be available, they cannot yet gain protected access to spectrum that is critical to the safe and reliable delivery of these services to the American public. There are not "big money" interests pushing for utility spectrum access in the 932/941 MHz and 928/952/956 MHz bands there are responsible public service companies and agencies that need an important tool to provide essential services in metropolitan and rural America. It is time for the FCC to stop ignoring commenters to this docket. It is time for the FCC to stop quibbling over the Balanced Budget Act of 1997 and fulfill Congress's intent – provide an adequate and protected pool of spectrum for critical national infrastructure entities. The FCC's actions over the last seven years have already endangered public safety; it is time for the Agency to step up and actually manage the nation's telecommunications resources, rather than abdicating responsibility to

the continuous pursuit of quick cash from mass market telecommunications ventures.

Paragraph 13

The FCC is correct in its assessment of the existing users in the 928/952/956 MHz band, and concludes that this band should be reserved exclusively for "private, internal use." It would be more appropriate to reserve this band for "public safety radio services," which also meet the "private, internal use" definition, but must also meet the more restrictive definitions in the Balanced Budget Act of 1997 (BBA 1997).

The logic for grandfathering existing subscriber-based services currently using the 928/952/956 MHz band is not apparent in the FNPRO, particularly if the FCC is going to make much of the 932/941 MHz band subject to auction. As proposed in the FNPRO the FCC will protect the current commercial users in 928/952/956 MHz when other similar ventures will be forced to obtain spectrum through competitive bidding in the 932/941 MHz band. This approach does not appear to provide equitable access to spectrum for commercial users. An equitable solution for those subscriber-based service licensees with existing investments in facilities in this band is grandfathering provisions with a sunset provision such as, 5 years from final report and order promulgation.

Paragraph 19

It appears there is growing confusion with regard to the definition of the various users of multipoint access spectrum (MAS). The term "public safety radio services" is the language coined in the BBA 1997, but has also been confused with the concept of "private, internal use." The FNPRO concludes that "public safety radio services" are a subset of the "private, internal use" users but that within the 932/941 MHz and 928/959 bands the previous licensing structure and historical use of these bands do not fall within "public safety radio services." This finding is directly at odds with the definition of "public safety radio services" articulated in the BBA 1997 and explained in the associated report language. The BBA 1997 report language provides a clear descriptive summary of "public safety radio services" that meet the private internal radio services definition included in the Act:

> "The exemption from competitive bidding authority for "public safety radio services" includes "private internal radio services" used by utilities, railroads, metropolitan transit systems, pipelines, private ambulances, and volunteer fire departments. Though private in nature, the services offered by these entities protect the safety of life, health, or property and are not made commercially available to the public."

As described in the FNPRO, the historical use of this MAS spectrum has been "the power, petroleum and security industries for various alarm, control, interrogation and status reporting requirements." It is clear from both this historical use and the report language that MAS spectrum meets the definition of "public safety radio services" when it is used to protect safety of life, health or property and is not sold commercially.

It is appropriate for the FCC to auction spectrum for "private, internal use" users who are not also

"public safety radio service" entities, but the BBA 1997 specifically excludes "public safety radio" services from the need to rely on spectrum exclusively available through competitive bidding. This exclusion should extend to the resolution of mutually exclusive applications.

Paragraph 20

AWWA agrees with the FCC's preliminary conclusion that the dominant use of the 928/952/956 MHz band is by "public safety radio services." Moreover, most if not all, of this band should be exclusively allocated for "public safety radio services" use. Grandfathering of existing users that don't meet those qualifications is inappropriate. But as noted previously in response to Paragraph 13 of the FNPRO,an equitable solution for those subscriber-based service licensees with existing investments in facilities in this band is grandfathering provisions with a sunset provision such as., 5 years from final report and order promulgation.

Paragraph 21

As AWWA has stated in prior comments, site-by-site licensing of MAS frequencies is the only licensing strategy that makes sense in the context of the current and foreseeable future band usage. Licensing on a geographic basis essentially shifts the administrative burden of working out overlapping coverage problems from the FCC to the users.

The wording of this paragraph is difficult, but it appears to suggest that the FCC is proposing to use site-by-site licensing if it ultimately concludes that the band should be reserved for "public safety radio services." AWWA believes site-by-site licensing is appropriate in this band particularly when it is reserved for "public safety radio services."

Paragraph 22

Even if the FCC reserves all of the 928/952/956 MHz band for "public safety radio services," AWWA believes that the set-aside proposed for the 932/941 MHz band is still appropriate and will not meet critical national infrastructure entities' need for spectrum. In previous comments to this and other WT dockets AWWA has noted that the "public safety radio service" pool should include at least 6 MHz of spectrum for primarily data transfer (i.e., SCADA, telemetry, etc.) with the majority of that allocation in the 900 MHz – 1200 GHz range. This demand for spectrum is based on a survey effort conducted by UTC in calendar 1998, and represents a much sounder estimate of MAS spectrum demand than the 1992 license filings cited in the FNPRO. Additional spectrum for uses like voice communications are also needed; those needs may be met outside the 900 MHz bands.

Paragraph 23

AWWA respectfully declines to comment on the FCC's request for speculation as to how to manage the 932/941 MHz band in the absence of a five-channel set-aside, because to do so would give credence to what would be a gross dereliction of its moral duty to act in the public interest and its legal obligation to respond to the Balanced Budge Act of 1997 (BBA 1997). This question implies either a veiled threat of retaliation against aggressive responders or a request for terms of surrender of the protection granted by the BBA 1997 and is inappropriate for an arm of the federal government – a servant of the public.

The FCC has traditionally categorized users according to the style of usage, such as fixed, mobile and private internal use. When frequency band allocations, such as those used for MAS radio and dispatch, were free and under populated, water utilities and other critical infrastructure sector public safety users were able to work within these awkward classifications and coexist with commercial users. Classification of users and assigning of spectrum based on solely on definitions such as "private internal use" is obsolete, paradoxical and unworkable in the context of the spectrum auctions and the BBA 1997. A spectrum auction removes access to the auctioned band for critical infrastructure public safety users due to their limited financial resources in comparison to commercial and speculator competitors. The protection from auctions mandated by the BBA 1997 for all public safety users within its broad definition was clearly intended to remedy this unintended effect of auctioning. Protection is preemptive by definition as in locking the barn door before the horse is stolen, and the only logical conclusion is that spectrum is only available for action after the protection mandates have been fulfilled.

In paragraph 20 of the FNPRO, the FCC recognizes the existence of critical infrastructure public safety users in the 9/28/952/956 MHz band. Until practical alternative spectrum is provided or segregated segments are defined for public safety and commercial users of this band, this band is a *defacto* public safety band and cannot be auctioned without violating the protection mandate in the BBA 1997. The same would be true for the bands where critical infrastructure public safety users are confined without options. The issue of a public safety radio service applicant choosing whatever segment of spectrum it desires is specious and will be moot when the FCC responds to the clear intent of the BBA 1997 by setting aside adequate spectrum to meet critical infrastructure public safety needs. In our opinion, the FCC cannot justify defining these bands as critical infrastructures public safety needs, nor can it justify defining these bands as auctionable based on mutually exclusive applications from commercial users when the FCC manufactured the mutual exclusivity by assigning critical infrastructure public safety agencies and commercial users to the same band. AWWA further believes that the FCC cannot arbitrarily withhold specific allocations for "public safety radio services" and then claim the lack of an allocation is adequate justification for its next action. The benefactors of the auction protection lack the financial influence of other interest groups, yet based only the strength of moral imperative presented to Congress, it acted to include the protection language in BBA 1997. It is therefore disheartening that the FCC continues to resist through specious analysis and circular reasoning the unambiguous language of the BBA 1997.

Any complications in the licensing process are the result of the FCC's attempt to put its regulatory defined classifications, such as "private internal radio service," above the law as stated in BBA 1997. When the Conference Report includes "private internal radio services" in the public safety exemption (see paragraph 18 comments above), it is correctly treating those services as a subset of public safety and excludes any parallel subset in other bands used strictly for commercial services. The complications are created by the FCC's perpetuation of its juxtaposition of these priorities. We recognize that rectifying this problem poses a burden to the FCC, but in our opinion, an attempt to shirk this responsibility and auction these bans as currently derived will not withstand a court challenge. The impact of the FCC's interpretation would be to obviate the BBA 1997 by acknowledging critical infrastructure public safety users while providing only token spectrum

allocations at best.

Paragraph 24

The Microwave Data Systems (MDS) proposal to grant all mutually exclusive applications that reach the coordinator on the same day and require the users to work out some sort of shared use agreement is on its face unworkable. There is no real incentive for these users to reach an agreement, but rather to go ahead and construct their systems and forever deal with the interference issues. An alternative approach would be to deny all mutually exclusive applications until such time that the applicants had worked out appropriate agreements for the use of the spectrum and resubmitted the applications. Under this approach an agreement is in place to resolve interference issues prior to access to the spectrum.

A legislative alternative would be to get Congress to reinstate the FCC's lottery authority for entities the Budget Act excludes from auctions. It appears this could have been overlooked in the Act and could easily be rectified.

Paragraph 28

The 1992 license filing for the 932/941 MHz band is a clear example of why suspension of acceptance and processing of applications in the 928/952/956 MHz band is inappropriate. Critical national infrastructure entities participated in the 1992 filing and have subsequently repeatedly informed the FCC that there is need for MAS spectrum. These needs nationwide are nationwide but focused in heavily urbanized areas. The absence of available MAS spectrum is limiting utilities ability to install wireless control systems that are necessary to provide secure private internal systems for ensuring operational control. These controls are critical to protecting the public's health by ensuring drinking water quality and quantity; managing the flow and discharge of wastewater; the management of electric, gas and pipeline systems.

A suspension on applications from critical national infrastructure entities in the 928/952/956 MHz band will further hinder utilities as they provide vital services to the nations communities.

SUMMARY

The FCC's approach to the issues addressed in this proposal do not meet either the Agency's responsibilities under the Balanced Budget Act of 1997 or provide a credible solution that ensures management of telecommunications for the public good. Adequate, useful (e.g., appropriate bands) spectrum allocations that are exempt from auction for critical infrastructure entities is a clear expectation of the U.S. Congress; the FCC should make a serious attempt to meet this expectation.